

## SOME EARLY AMERICAN PAPERS ON ENTOMOLOGY

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Although some of the colonists of America were interested enough in entomology to collect and send insects to European entomologists for study, it was only when they began putting their observations on paper that a real beginning was made.

Apparently the first American to publish on American insects was the botanist, John Bartram, whose accounts of wasps and dragon flies appeared in the "Philosophical Transactions" (London) in the shape of letters to Peter Collinson. According to Hagen's "Bibliotheca Entomologica," Bartram's insect papers were: "An account of some very curious Wasp-Nests made of clay in Pennsylvania" (Philos. Trans. 1745, Vol. 43, No. 476, pp. 363-366); "Descriptions of the great black Wasp from Pennsylvania" (Philos. Trans. 1750, Vol. 46, No. 493, pp. 278-280); "Observations on the Dragon-fly, or Libella of Pennsylvania" (Philos. Trans. 1750, Vol. 46, No. 494, pp. 323-325; 400-402); "Observations on the Yellowish-Wasp of Pennsylvania" (Philos. Trans. 1763, Vol. 53, pp. 37-39). After Bartram's death in 1777, the editor of the Philadelphia Medical and Physical Journal, which lasted only six years, published a manuscript of Bartram's entitled "Additional Observations on the Cicada septendecim" (Phila. Med. and Physic. Journ. 1804, Art. 15, pp. 56-59). Article 16 of the same journal carried a paper by Charles Reichel on "Some particulars concerning the locust of North America," this having been written, according to the editor's note, at Nazareth, Pennsylvania, August 2, 1793.

On March 11, 1768, Moses Bartram, a native of Philadelphia, read before the American Philosophical Society (Philadelphia), the oldest scientific organization in the United States and founded by Franklin in 1727, a paper on "Observations on the

native Silks (sic) Worms of North America," which was printed in the Transactions, Vol. 1, Sect. 2, pp. 224-30, 1771, ed. 2, Vol. 1, pp. 294-301, 1789. In this paper Bartram describes at length his breeding experiments with caterpillars, which he raised originally from cocoons collected by him along the banks of the Schuylkill. He tells how he kept the food fresh and moist in water and suggests the use of a special feeding trough for any one inclined to breed them in numbers. He says nothing about unwinding the cocoons or the quality of the silk.

In the same volume (Trans. Vol. 1, Sec. 2, pp. 205-17) there is a paper by Colonel Landon Carter, of Sabine-Hall, Virginia, transmitted by Colonel Lee, entitled "Observations concerning the Fly-Weevil, that destroys the wheat, with some useful discoveries and conclusions, concerning the propagation and progress of that pernicious insect, and the methods to be used to prevent the destruction of the grain by it." Col. Carter's paper is quite interesting and apparently he was frequently puzzled by the adaptability of the insect and its ability to survive under certain conditions. According to the succeeding paper in the Transactions (Vol. 1, Sect. 2, pp. 218-223), "Same Subject, by the Committee of Husbandry," Col. Carter's "Fly-Weevil" proves to be the European Anguimoid grain-moth which the committee recorded as occurring from Carolina into Virginia, Maryland and the lower part of Delaware.

Concerning the earliest descriptions published in America, Mr. C. W. Leng in his "Catalogue of the Coleoptera of America, North of Mexico" (p. 444), suggests that these probably appeared in the early volumes of the Medical Repository which flourished from 1797 to 1824, under the senior editorship of Samuel Latham Mitchill. In volume 2, number 2, pp. 174-177, 1798, of this journal there was printed "An Account of a Species of Cantharis, found in Bucks County, Pennsylvania; including Observations on its Medical Qualities," by Isaac Chapman, physician. In part Doctor Chapman states: "Two or three years ago, William Smith, an intelligent person in my neighborhood, informed me, that one day, as he was at work, he accidentally mashed an insect on his shoulder, which in a short time,

produced a complete vesication; and it appearing to be the insect here described, I was determined to gather some of them, and give them a trial in my practice; which, however, I neglected doing until last summer.

"This insect has a very near resemblance, in outward form, to the *Meloe (vesicatorius) alatus viridissimus nitens*, *antennis nigris* (Linn.), or Spanish Flies, as they are commonly called; but is rather smaller than even those brought from Spain, and of a very different colour: the head is of a very light red, with black antennæ; the elytra, or wing cases, are black, margined with pale yellow, and a stripe of the same colour extends along the middle of each of them; the tarsi have five articulations, the mouth is armed with jaws and furnished with palpi."

Chapman then tells how he found them in potato patches, on beets, garden purslane, etc., doing considerable damage, and describes his experiments in powdering the beetles and applying the powder to some of his patients, with the results that "good blisters" were always raised. He was of the opinion, as a result of his investigations, that "every part of the insect is endowed with an equal, or nearly equal, degree of their quality." He concludes by discoursing on the methods of collecting the beetles and the advantages, to this country, of collecting them here instead of importing them.

In volume three of the *Medical Repository* (pp. 213-214, 1800), under the title "Chemical News; communicated in a Letter to Samuel L. Mitchill, M.D., Professor of Chemistry in Columbia College, New York, by James Woodhouse, M.D., Professor of Chemistry in the University of Pennsylvania, etc., dated Philadelphia, August 22, 1799," Doctor Woodhouse, in addition to submitting notes on various chemical matters, has the following to say under "Of American Blistering Flies:"

"I have discovered two other blistering meloes besides that described in the *Medical Repository*. The one I would call *Meloe elematidies*, as it is particularly fond of several species of this plant. It is larger than the one described by Doctor Chapman, and the female is nearly twice the size of the male. The head, thorax, elytra and antennæ are black: the elytra only

edged with white. The abdomen is of a light ash-colour. The upper part of the abdomen, under the wings, is marked by two longitudinal streaks of a bright clay-colour. The *asters* are sometimes black with these flies, and the leaves are entirely destroyed by them.

"The other I would call *Meloe nigra*, the *Pennsylvanica* of Linnaeus. It is not more than half the size of Chapman's fly. The whole of it is black. It feeds upon the *prunella vulgaris*, or self-heal, and *ambrosia trifida*, or stick weed.

"I applied a small blister of these flies to my skin, and lost the plaister in half an hour. In twelve hours after, a fine blister was produced. A watery extract of the flies blistered in six hours. Distilled in a retort, they yield an acid, whose properties have not yet been examined.

"Besides these three kinds of meloe, there is another found in this country, mentioned by Calm, and called by Linnaeus *Meloe majalis*; but it is not yet known whether it will blister; for Shoepf expressly asks the question, 'An mel. vesicatorio (cantharid. officinal.) substituendus?'

"We then know for certainty of three kinds of indigenous blistering flies—meloe Chapmani, meloe clematidis, and meloe nigra. *Meloe majalis*, doubtful."

According to Leng's "Catalogue," Woodhouse's *chapmani* is a synonym of *Epicauta vittata* Fab., his *clematides* a synonym of *Epicauta cinerea* (Forst.), and his *nigra*, a synonym of *Epicauta pennsylvanica* (DeG.). Another early paper on these insects was "An account of the American cantharis or Meloe Americæ" by Nathaniel Dwight, which appeared in the Memoirs of the Connecticut Academy of Arts and Sciences (M. V. 1, pt. 1, pp. 99-102, 1800).

Woodhouse was a chemist and a physician and apparently not particularly interested in insects. He was professor of chemistry in the University of Pennsylvania from 1795 until his death in 1809, and was appointed to that chair when Joseph Priestley declined to accept it. As a surgeon in the U. S. Army, he accompanied General St. Clair's expedition against the western Indians in 1791. He was also the author of various books on chem-

istry and contributed to the scientific and medical journals of his time. According to one account, he was apparently the first to demonstrate "the superiority of the Lehigh anthracite coal in Northampton County, Pennsylvania, over the bituminous coals of Virginia for intensity and regularity of heating power."

In addition to the papers on insects mentioned above and previous to the time when Say became active, various other entomological accounts appeared in the publications of the American Philosophical Society, and the Philadelphia Medical and Physical Journal. These dealt with peach-tree borers, silk worms, chicken lice, honey-bees, cicadas, the Hessian fly, the bee moth and insects injurious to pine trees. Considering that the country was almost entirely rural at that time, these subjects reflect the occupational interests of the inhabitants.

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